materials for installing that equipment (direct installation costs), costs for site preparation and buildings, and certain other costs (indirect installation costs). The primary items included as part of the total capital investment are shown below:

- **Purchased Equipment Cost**, which is the sum of:
  - Base equipment cost (control device plus auxiliaries);
  - Instrumentation;
  - Sales tax; and
  - Freight;
- **Direct Installation Costs**, which may include costs for items such as:
  - Foundation and supports;
  - Handling and erection;
  - Electrical;
  - Piping;
  - Insulation; and
  - Painting;
- **Site Preparation Costs**, which include costs associated with surveying, clearing, leveling, grading, and other civil engineering tasks involved in preparing the site for construction;
- **Building Costs**; which include the costs associated with constructing any buildings required as a direct result of installation of the air pollution control device.
- **Indirect Costs**; which may include costs for such items as:
  - Engineering;
  - Construction field expenses (costs for construction supervisory personnel, office personnel, rental of temporary offices, etc.);
  - Contractor fees (for construction and engineering firms involved in the project);
  - Startup (costs to get the control system operating);
  - Performance tests (costs to verify that the control system meets its performance guarantees); and
  - Contingencies (to cover unforeseen costs that may arise).

Total annual costs are typically based on direct costs and indirect costs. The components included in each of the cost types is listed below:

- **Direct Annual Costs**, which may include costs for items such as:
  - Raw materials (such as reagents or absorbers);
  - Operating labor;
  - Supervisor labor;
  - Maintenance labor;
  - Maintenance materials (e.g., greases and other lubricants, gaskets, seals);
  - Utilities (e.g., steam, electricity, fuel, process and cooling water);
  - Waste treatment and disposal; and
  - Replacement materials;
- **Indirect Annual Costs**, which may include costs for items such as:
  - Overhead;
  - Administrative charges;
  - Property tax;
  - Insurance; and
  - Capital recovery (essentially this represents the annual "payment" sufficient to finance the total capital investment for its entire life).

Total annual costs may also include recovery credits. Recovery credits may include credits taken for materials or energy recovered by the control system, which may be sold, recycled to the process, or reused elsewhere at the site. For example, when controlling sulfur with a fuel gas desulfurization system, as the lime or limestone reagent reacts with the sulfur in the exhaust gas stream, it becomes transformed into gypsum, which can either be landfilled (a direct cost) or collected and sold to wallboard manufacturers (a recovery credit). If recovery credits are included, total annual costs would be calculated by summing the direct and indirect costs and then subtracting the costs associated with recovery credits.

Section 1, Chapter 2 (Cost Estimation: Concepts and Methodology) of the Manual provides additional details on the total capital costs and total annual costs. Section 1, Chapter 2 as well as the control technology-specific chapters provide guidance on how to estimate the costs associated with each of the items that comprise the total capital costs and annual costs for a particular control technology. However, if actual cost data are known, they should be used. At a

minimum, the cost of the control device equipment and auxiliaries should be obtained from the vendor that manufactures the control technology.

Once the total annual costs are determined, it is necessary to calculate the annual amount (in unit of tons per year [TPY]) of emissions removed by the control technology being applied. The following formula can be used to calculate the TPY removed:

TPY Removed = Uncontrolled Emissions (TPY) x (Control Efficiency/100)

The uncontrolled emissions should represent the annual emissions from the source if no control technologies were applied. The emission estimation procedures described in Section 2 of this document will help you calculate the uncontrolled emission rate.

As an example, if you have a heater that has uncontrolled NO_X emissions of 43.8 TPY and you will be using a control technology with a NO_X control efficiency of 90 percent, then the TPY removed by the control technology would be calculated as follows:

TPY Removed = 43.8 TPY x (90/100) = 39.4 TPY

Appendix E includes an example of a detailed cost-effectiveness analysis, which includes estimating the costs described above as well as calculating the cost per ton of pollutant removed.

In addition to the average cost effectiveness of a control option, incremental cost effectiveness between control options should also be calculated as discussed in the NSR Workshop Manual.

Step 5: Select BACT

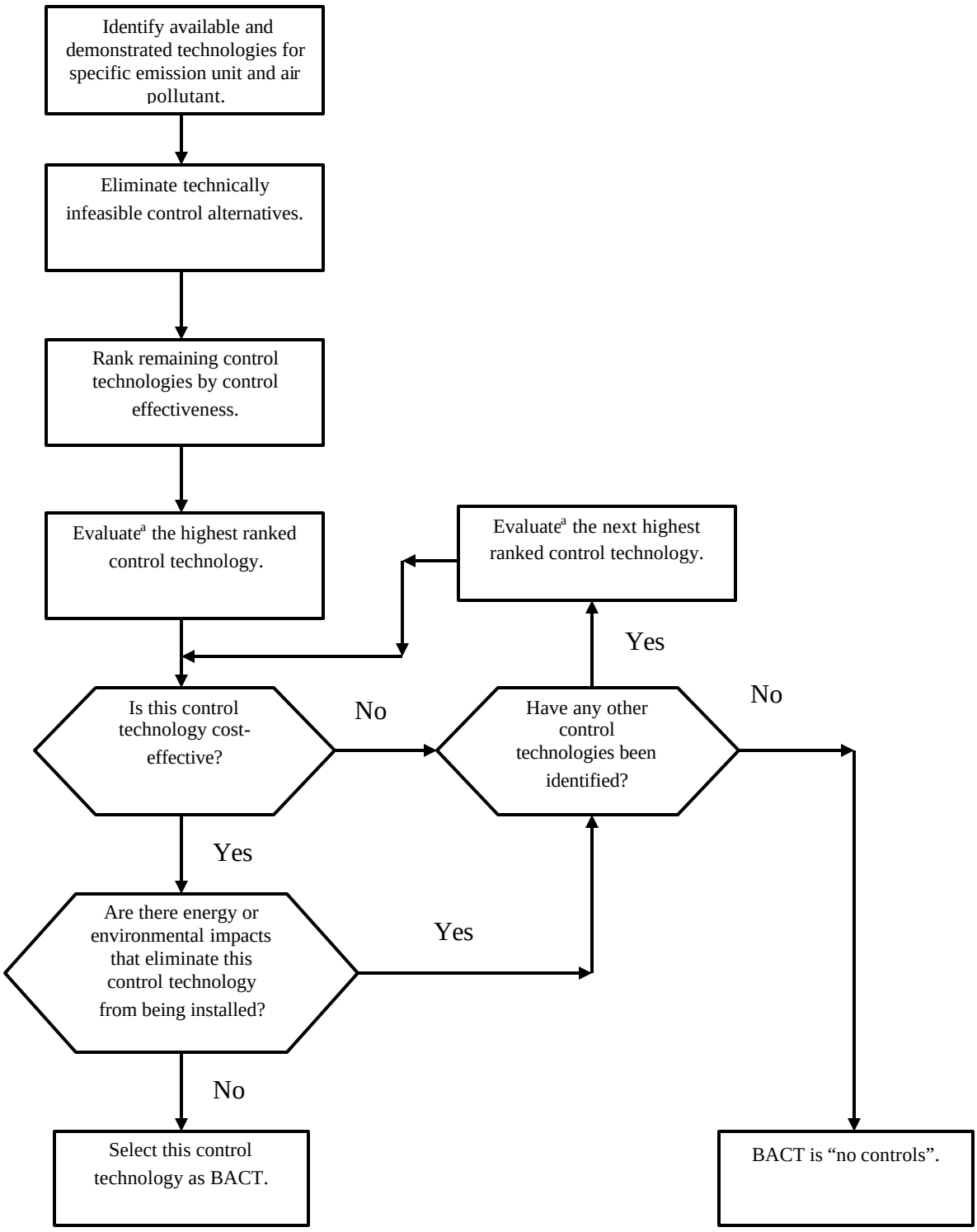
The most effective control option not eliminated in Step 4 is proposed as BACT for the air pollutant and emission unit under review.

If all candidate technologies identified in Step 2 are eliminated in Step 4, then the BACT determination for that equipment/pollutant is "no controls." However, the department may still impose an emission rate BACT limit. This BACT limit would correspond to the uncontrolled emission rate from the source.

An overview of the entire BACT analysis process is shown in Figure 8-1.

Figure 8-1

OVERVIEW OF BACT ANALYSIS



[a] Evaluate by assessing the economic, energy, and environmental impacts.

8.1.5 Permit Conditions from a BACT Analysis

If a control technology is selected as BACT, the emission limitation that represents this determination is often included in the permit as a permit limitation. This limitation is most often expressed in units similar to these:

- Pounds of pollutant per hour;
- Pounds of pollutant per ton of material processed; or
- Parts per million, volume basis.

The applicant should propose an emission limit for each unit and air pollutant subject to BACT. When proposing any short-term limit, it is important that the emission limit contain a contingency to account for fluctuations in emissions normal to the process. Fluctuations in the emission rate could be due to load swings, ambient conditions, or small variations in materials processed or combusted. Unless the equipment is accompanied by a vendor emissions guarantee that covers the normal range of conditions under which the equipment will be operated, it is advisable to present and justify a contingency for uncertainty.

If a numerical emission limit is not feasible the applicant may propose work practices instead. An example work practice plan for a refinery unit may consist of the following elements:

- Identification and tagging of all components (e.g., valves, flanges, relief valves) to participate in the program;
- Thresholds to define a leak;
- A commitment to periodically monitor (using a portable organic vapor analyzer) all tagged components for emissions of VOC;
- A commitment to repair components identified as leaking, within a prescribed time period; and
- Record keeping of all the actions as listed above.

BACT emission limits or conditions must be met on a continual basis at all levels of operation, demonstrate protection of short term ambient standards, and be enforceable as a practical matter (contain appropriate averaging times, compliance verification procedures, and record keeping requirements). Compliance verification procedures may consist of monitoring times of operation, fuel input, or other indices of operating conditions and practices.

8.2 Lowest Available Emission Rate (LAER) – Application Form F

8.2.1 What is LAER?

LAER is defined as:

> *"The rate of emission achieved under the most stringent emission limitation imposed in any state or any emission control that has been achieved in practice by a comparable source."* [18 AAC 50.990(50)]

The LAER selection process is similar to the BACT process except that the cost and other parameters that serve to disqualify a technology from consideration as BACT are no longer applicable.

8.2.2 Who is Required to Comply With LAER?

If your project is a Nonattainment Major Source or Nonattainment Major Modification, then you must comply with LAER. As the first step of the permit application process, you should have identified your project classification. (See Sections 1.2 and 1.3.) If your project is a Nonattainment Major Source or Modification, you are required to control emissions of the nonattainment pollutant to a rate that represents the LAER.

8.2.3 How to Determine LAER

The most stringent emissions limitation contained in a State Implementation Plan (SIP) for a class or category of emission units must be considered LAER, unless:

1. A more stringent emissions limitation has been achieved in practice; or
2. The SIP limitation is demonstrated by the applicant to be unachievable.

By definition, LAER cannot be less stringent than any applicable New Source Performance Standard (NSPS). NSPS standards are defined in 40 C.F.R 60. Section 5.1 of this document provides an overview of NSPS standards.

Some recommended sources of information for determining LAER are:

- SIP limits for that particular class or category of sources. The SIP-approved emission standards for the State of Alaska are included in 18 AAC 50.050 through 50.090, and are also discussed in detail in Section 4 of this document. SIP emission limits of other states are typically available on each state's website.
- Construction or operating permits issued in other nonattainment areas; and
- EPA's RBLC database, which is described in Section 8.1.4.

Several technological considerations are involved in selecting LAER. The LAER is an emissions rate specific to each emissions unit, including fugitive emissions sources. The emissions rate may result from a combination of emissions-limiting measures such as:

- A change in the raw material processed;
- A process modification; and/or
- Add-on controls.

Unlike BACT, the LAER requirement does not consider economic, energy, or other environmental factors. However, cost is considered to some degree. For example, an emissions limit should not be considered for LAER if the cost of maintaining the associated level of control is so great that a major new source could not be built or operated. However, if another facility in the same (or comparable) industry already uses that control technology, then such use constitutes evidence that the cost to the industry of that control is not prohibitive. Thus, for a new source, LAER costs are considered only to the degree that they reflect unusual circumstances that in some manner differentiate the cost of control for that source from control costs for the rest of the industry.

Where technically feasible, LAER generally is specified as both a numerical emissions limit (e.g., lb/MMBtu) and an emission rate (e.g., lb/hr). In cases in which a numerical limitation is demonstrated to be technically infeasible, a design, operational, or equipment standard may be proposed instead. However, such standards must be clearly enforceable.

Additional guidance on determining LAER is included in the draft NSR Workshop Manual published by EPA in October 1990.

8.2.4 Permit Conditions from a LAER Analysis

The discussion in Section 8.1.5, Permit Conditions from a BACT Analysis, also applies to a LAER analysis.

8.3 Case-by-Case MACT – Application Form F

8.3.1 What is Case-by-Case MACT?

There are several maximum achievable control technology (MACT) standards that have been proposed but are not yet in effect, as well as additional MACT standards that have been identified but not yet proposed. According to the CAA, EPA was to adopt final MACT standards for all identified source categories by November 15, 2000. The CAA includes a "hammer" provision requiring that if EPA fails to adopt a final MACT standard for a source category by the November 15, 2000 deadline, then 18 months later, i.e. May 15, 2002, each source in that category must apply to the state permitting agency for a "case-by-case MACT determination." The permitting agency – in Alaska, the department – must then make a determination of what controls constitute MACT for the applicant source and issue a new or amended Title V operating permit to the source embodying that case-by-case MACT determination.

Regulations to implement case-by-case MACT are in 40 C.F.R 63, Subpart B. The application for a case-by-case MACT determination is a two-part process. Part 1 of the application requests very basic information about the affected sources. Part 2 of the application includes the substantive information required by the permitting authority to make its MACT determination. The application content for a MACT determination is contained in 40 C.F.R 63.53.

If your facility is subject to case-by-case MACT, your facility must meet a MACT emission limitation for all hazardous air pollutant (HAP) emissions within the source category. See Section 8.3.2 for applicability criteria. You may also request an applicability determination from EPA.

MACT is an emission limitation representing a maximum degree of reduction of HAP emissions, taking into consideration the costs of achieving such emission reductions and any non-air quality health and environmental impacts and energy requirements. For new sources, the MACT emission limitation will be no less stringent than the emission control that is achieved in practice

by the best controlled similar source. For existing sources, the MACT emission limit will be no less stringent than:

- The average emission limitation achieved by the best performing 12 percent of the existing sources (for which the EPA has emission information), excluding some sources meeting criteria specified in 40 C.F.R 63, Subpart B, in the category or subcategory for categories and subcategories with 30 or more sources; or
- The average emission limitation achieved by the best performing 5 sources (for which the EPA has emission information) in the category or subcategory for categories and subcategories with fewer than 30 sources.

These minimum requirements for the MACT emission limitation for new and existing sources are termed the "MACT floor".

8.3.2 Who is Required to Perform a Case-by-Case MACT Determination?

You are required to perform a case-by-case MACT determination if you meet both of the following criteria:

1. Your source is a major source of HAPs; and
2. The EPA fails to promulgate emission standards for an applicable source category by November 15, 2000.

Under MACT standard regulations, a major source is defined as:

> *"any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants."*

8.3.3 How to Perform a Case-by-Case MACT Determination

A case-by-case MACT determination is quite complex. Therefore, the department recommends that you contact them for guidance on how to perform a case-by-case MACT determination.

8.3.4 Permit Conditions from a Case-By-Case MACT Determination

If you are required to perform a case-by-case MACT determination, you will end up with a permit condition that either: 1.) limits the quantity (e.g., tons per year), rate (e.g., 10 pounds of HAP per 100 pounds of polymer), or concentration (e.g., 10 ppm HAP) of HAP emissions on a continuous basis, or 2.) designates specific design, equipment, work practice, operational standard, or a combination thereof, that achieves a maximum degree of emissions reduction, when it is not practicable (economically or technologically) to prescribe a specific numerical emission limitation. The permit will also include testing, monitoring, reporting, and record keeping requirements to assure compliance with the MACT emission limitation.

8.4 References

U.S. Environmental Protection Agency. 2002. *Air Pollution Control Cost Manual*. 6th ed. EPA 452-02-001. January.

U.S. Environmental Protection Agency. 1990. *New Source Review Workshop Manual*. October.

9.0 AIR QUALITY RELATED VALUES – PSD MAJOR SOURCES AND MODIFICATIONS ONLY – FORM G

The department cannot issue a PSD permit unless the applicant shows that allowable emissions form the stationary source and associated growth will not adversely affect air quality related values (AQRVs), including noise, odor, visibility, vegetation, and soils in any area within the state. [18 AAC 50.315(e)(3)(C)] Adverse impacts to AQRVs may occur even if pollutant concentrations do not exceed the Alaska Ambient Air Quality Standards (AAAQS) or PSD increments.

9.1 Who is Required to Evaluate Air Quality Related Values?

You must evaluate AQRVs for PSD Major Sources and PSD Major Modifications (M3, M4a, or M4b). As the first step of the permit application process, you should have identified your project classification. (See Sections 1.2 and 1.3).

9.2 What are Air Quality Related Values?

18 AAC 315(e)(3)(C) defines AQRVs as including noise, odor, visibility, vegetation, and soils. These assessments are required of all PSD applicants. However, the department, or for a Class I area or other federally protected area, a Federal Land Manager, can identify additional site-specific AQRVs. AQRVs are identified in the Federal Register (FR 15016, April 10, 1978) as including visibility, flora, fauna, odor, water, soils, geologic features, and cultural resources. Recently, AQRVs have been defined as:

> *"A resource, as identified by the Federal Land Manager (FLM) for one or more Federal areas, that may be adversely affected by a change in air quality. The resource may include visibility or a specific scenic, cultural, physical, biological, ecological, or recreational resource identified by the FLM for a particular area."* (Federal Land Managers Air Quality Related Values Workgroup [FLAG], 2000).

AQRVs are specific to each area because of the diversity of the defined components of AQRVs.

Alaska Class I areas are [18 AAC 50.015]:

- Denali National Park including the Denali Wilderness but excluding the Denali National Preserve;
- Bering Sea National Wildlife Refuge designated as a National Wilderness Area;
- Simeonof National Wildlife Refuge designated as a National Wildlife Area; and
- Tuxedni National Wildlife Refuge designated as a National Wilderness Area.

Figures 1-1 through 1-4 in Section 1 show these Class I areas.

Alaska's special protection areas for visibility, which are integral vistas that are part of Class I areas, are as follows [18 AAC 50.025]:

- Mt. Deborah and the Alaska Range East, as viewed from approximately the Savage River Campground area;
- Mt. McKinley, Alaska Range, and the Interior Lowlands, as viewed from the vicinity of Wonder Lake; and
- Geographic areas classified as Class I areas.

Relevant AQRVs should be determined through consultation with the department and FLMs before submitting an application and should be discussed in the modeling protocol (see Section 6.6.4 of this document).

To evaluate the potential impact to AQRVs, one or more parameters are defined for each AQRV, and by measuring or estimating the change in the parameter due to the expected emissions from a project, the impacts to the AQRV are determined. For example, the effect on vegetation may be estimated by comparing the predicted ambient concentrations of an air pollutant to known plant mortality rates when exposed to that air pollutant. For visibility assessments, modeled project impacts can be compared to threshold values for a particular area to evaluate source impacts to regional haze or discrete plume blight.

Because AQRVs can vary between locations, it is impossible to compile a comprehensive list of values or their relevant parameters in this Guidance Document.

9.3 Federal Land and Federal Land Managers

Class I areas and other Federal lands are managed by FLMs. FLMs are required to define the AQRVs for the Class I areas under their jurisdiction. Although the FLMs must review impacts to AQRVs for Class I areas, they frequently will review and comment on permit applications or proposed permits that may affect Federal lands other than Class I areas. For impacts to AQRVs in Class I areas, the FLM can make a determination of either:

- No adverse impacts; or
- Adverse impacts based any available information.

If the FLM determines that a project may have adverse impacts, the FLM may recommend that the permit be denied until the applicant and the department determine mitigation measures and permit conditions that would result in acceptable AQRV impacts.

9.4 How Are Air Quality Related Values Evaluated?

This section presents a set of general procedures that you should follow in preparing an analysis of AQRVs. It is not intended to be a guide to performing an analysis of any specific AQRV, but it will help you through the AQRV evaluation process that results in a complete permit application.

9.4.1 Pre-Application

Before submitting a PSD application, the department recommends that you meet with the department to discuss the relevant AQRVs. Typically, the department will also invite the relevant FLM (if any) to participate in any discussion of AQRVs pertaining to Federal lands. A pre-application meeting will help the permit applicant understand the data and analyses needed by the department and any relevant FLM. The result of any pre-application meeting should be to:

- Agree on which lands and/or Class I areas are potentially affected;
- Determine the relevant AQRVs for each potentially affected area;

- Determine the indicators/parameters that will be used to measure a source's impact, such as visibility range for the nearest Class I area;
- Determine the scope of analysis for determining whether the source potentially impacts the identified areas;
- Determine which analyses need to be included in the permit application; and
- Determine all pre-application monitoring necessary to assess the current status and the current effects on the identified AQRVs (this monitoring is usually the responsibility of the applicant).

The agreements reached during a pre-application meeting are usually summarized in an applicant modeling protocol (see Section 6.6.4). Although a pre-application meeting is not required, meeting with the department and the FLM can and does avoid delays during permit review.

9.4.2 Source Applicability for Class I Areas

In general, any proposed new PSD Major Source or PSD Major Modification located within 100 kilometers (km) of a Class I area will be required to assess the impact to at least some of the AQRVs of the Class I area. The assessment requirements will vary depending on the source emissions and Class I area. The FLM may also ask for limited analyses for sources located within 200 km of a Class I area. Applicants should always request that the department consult the FLM to confirm the need and extent of an AQRV impact analysis.

For Class II areas, the department generally will not request an AQRVs analysis for locations more than 100 km from the stationary source or for locations where pollutant concentration increases are less than 1 microgram per cubic meter ($\mu g/m^3$). However, there may be source specific instances when the department does require analysis at such locations.

9.4.3 Class I Area Visibility Impact Analysis

Visibility is singled out for special protection by Federal regulations in accordance with the national goal of preventing any future, and remedying any existing, impairment of visibility in Class I areas caused by man-made air pollution. [40 C.F.R. 51.307, 40 C.F.R. 52.27] A visibility impact analysis is required with every PSD application. The analysis must address any Class I area where there may be potential to impair visibility. For information on performing visual

impact analyses, the department recommends the U.S. EPA's *Workbook for Plume Visual Impact Screening and Analysis*. Recent additions to proposed modeling guidance for regional haze assessments have been adopted by the FLMs. The department and the FLM may require the use of long-range transport models to assess AQRVs at Class I areas. The FLMs may provide technical direction.

9.4.4 Permit Application

The AQRVs analysis section of a permit application should:

- Identify all Class I areas within 100 km of the proposed project;
- Identify any other Class I areas that may be affected;
- Perform all necessary Class I area and Class II area increment analyses;
- Perform an AQRV visibility impact analysis. The analysis must include any Class I area within 100 km of the proposed project, or within a larger distance if required by the FLM;
- Provide all information needed to conduct the AQRV impact analyses required by the FLM and the department; and
- Include the results of any monitoring required by the reviewing agency (state or Federal).

The department is required to send a copy of the permit application to the relevant FLM for any source that may affect a federally protected area's visibility or other AQRVs. The department recommends that applicants supply an additional copy of a permit application whenever an AQRV impact analysis is part of a permit application.

9.5 References

Federal Land Managers Air Quality Related Values Workgroup [FLAG]. 2000. Phase 1 Report. December.

U.S. Environmental Protection Agency. 1992. Workbook for Plume Visual Impact Screening Analysis (revised). EPA-450/4-88-015. October.

10.0 PORT OF ANCHORAGE

For a new stationary source classified as a Port of Anchorage Facility [under 18 AAC 50.300(g)] or a modification classified as a Modification Type M11 (Port of Anchorage Modification) [under 18 AAC 50.300(h)(11)], an air quality control construction permit application must include the information required in the department's *Air Quality Compliance Certification Procedures for Volatile Liquid Storage Tanks, Delivery Tanks, and Loading Racks*, adopted by reference in 18 AAC 50.030. A copy of this document is included in Appendix F. To prepare a construction permit application please see the following sections of the document:

- The boundaries of the Port of Anchorage (Section 1.b), which are also described in Section 1.1.3 of this document;
- The definition of a volatile liquid (Section 1.c);
- How to determine whether 18 AAC 50.085 and 18 AAC 50.090 apply (Section 1.d); and
- Permit application requirements (Section 2).

Definitions directly from the following regulations are included in this Appendix:

- Alaska Statute (AS) 46.14.990 **after** the 2003 Amendments;
- AS 46.14.990 **before** the 2003 Amendments; and
- 18 Alaska Administrative Code (AAC) 50.990.

DEFINITIONS FROM AS 46.14.990 AFTER 2003 AMENDMENTS

* AS 46.14.990(2) is amended to read:

(2) "ambient air" has the meaning given in 40 C.F.R. 50.1 [MEANS THAT PORTION OF THE ATMOSPHERE, EXTERNAL TO BUILDINGS, TO WHICH THE GENERAL PUBLIC HAS ACCESS];

* AS 46.14.990(5) is repealed and reenacted to read:

(5) "construction" has the meaning given in 40 C.F.R. 51.166(b);

* AS 46.14.990(9) is amended to read:

(9) "emission" means a release of one or more air pollutants [CONTAMINANTS] to the atmosphere;

* AS 46.14.990(10) is repealed and reenacted to read:

(10) "emission limitation" and "emission standard" have the meaning given in 40 C.F.R. 51.100;

* AS 46.14.990(13) is repealed and reenacted to read:

(13) "fugitive emissions" has the meaning given in 40 C.F.R. 51.166(b);

* AS 46.14.990(14) is amended to read:

(14) "hazardous air pollutant [CONTAMINANT]" means a pollutant listed in or under 42 U.S.C. 7412(b) (Clean Air Act, sec. 112(b));

* AS 46.14.990(16) is repealed and reenacted to read:

(16) "modification" has the meaning given in 42 U.S.C. 7411(a) (Clean Air Act, sec. 111(a)) and 40 C.F.R. 60.14;

* AS 46.14.990(18) is amended to read:

(18) "operator" means a person or persons who direct, control, or supervise a stationary source or emission unit [FACILITY OR SOURCE] that has the potential to emit an air pollutant [CONTAMINANT] to the atmosphere;

* AS 46.14.990(19) is amended to read:

(19) "owner" means a person or persons with a proprietary or possessory interest in a stationary source or emission unit [FACILITY OR SOURCE] that has the potential to emit an air pollutant [CONTAMINANT] to the atmosphere;

DEFINITIONS FROM AS 46.14.990 AFTER 2003 AMENDMENTS

* AS 46.14.990(21) is repealed and reenacted to read:

(21) "potential to emit" has the meaning given in 40 C.F.R. 51.166(b);

* AS 46.14.990(24) is amended to read:

(24) "small business facility" means a stationary source [FACILITY] that

(A) is owned or operated by a person who employs 100 or 10 fewer individuals;
(B) is a small business concern as defined in 15 U.S.C. 631 (Small Business Act); and

(C) emits less than 100 TPY of regulated air pollutants [CONTAMINANTS];

* AS 46.14.990 is amended by adding new paragraphs to read:

(28) "air pollutant" has the meaning given in 42 U.S.C. 7602 (Clean Air Act, sec. 302);

(29) "building, structure, facility, or installation" has the meaning given in 40 C.F.R. 51.166(b) except that it includes a vessel

(A) that is anchored or otherwise permanently or temporarily stationed within a locale;

(B) upon which a stationary source or stationary sources are located; not including stationary sources engaged in propulsion of the vessel; and

(C) that is used for an industrial process, excluding a tank vessel in the trade of transporting cargo; in this subparagraph, "industrial process" means the extraction of raw material or the physical or chemical transformation of raw material in either composition or character;

(30) "emission unit" has the meaning given in 40 C.F.R. 51.166(b);

(31) "major modification" means a change that meets the definition of "major modification" under either 40 C.F.R. 51.165 or 40 C.F.R. 51.166;

(32) "major stationary source" means a stationary source or physical change that meets the definition of "major stationary source" under either 40 C.F.R. 51.165 or 40 C.F.R. 51.166;

(33) "regulated air pollutant" means an air pollutant subject to regulation under 42 U.S.C. 7401 - 7671q (Clean Air Act);

(34) "stack" has the meaning given in 40 C.F.R. 51.100;

DEFINITIONS FROM AS 46.14.990 AFTER 2003 AMENDMENTS

(35) "stationary source" has the meaning given in 40 C.F.R. 51.166(b);

* (a) AS 46.14.990(1), 46.14.990(7), 46.14.990(11), 46.14.990(22), 46.14.990(23), and 46.14.990(25) are repealed.

(b) AS 46.14.240(c) is repealed.

DEFINITIONS FROM AS 46.14.990 BEFORE 2003 AMENDMENTS

(1) “air contaminant” means a regulated air contaminant or a hazardous air contaminant;

(2) “ambient air” means that portion of the atmosphere, external to buildings, to which the general public has access;

(3) “ambient air quality standard” means a standard, other than an emission standard, adopted under AS 46.14.010 , 46.14.140, 46.14.400(f), or 42 U.S.C. 7409 (Clean Air Act, sec. 109);

(4) "commissioner" means the commissioner of environmental conservation;

(5) "construct" or "construction" means to fabricate, erect, or install, or to make a physical change, that would result in emissions;

(6) "construction permit" means a permit under AS 46.14.130 (a), including all relevant exhibits, addendums, transmittal letters, compliance schedules, administrative orders, emergency orders, and court orders;

(7) "contaminant outlet" includes exhaust stacks, flares, vents, and other openings in a facility from which an air contaminant could be emitted;

(8) "department" means the Department of Environmental Conservation.

(9) "emission" means a release of one or more air contaminants to the atmosphere;

(10) "emission limitation" and "emission standard" mean a requirement established by the department or the federal administrator, other than an ambient air quality standard, that limits the quantity, rate, or concentration of emission of an air contaminant, including a requirement relating to the operation or maintenance of a source to ensure sustained emission reduction, and design, equipment, work practice, or operational standard adopted under this chapter or 42 U.S.C. 7401 - 7671q (Clean Air Act);

(11) "facility" means

> (A) one or more structures, buildings, installations, or properties that are contiguous or adjacent and are owned or operated by the same person or by persons under common control; and
>
> > (i) upon which a source or sources are located; or
> >
> > (ii) that is a source of emissions associated with tank vessel loading and unloading, consistent with 42 U.S.C. 7401 - 7671q (Clean Air Act) and regulations adopted under those sections; or
>
> (B) a vessel

DEFINITIONS FROM AS 46.14.990 BEFORE 2003 AMENDMENTS

(i) that is anchored or otherwise permanently or temporarily stationed within a locale;

(ii) upon which a source or sources are located, not including sources engaged in propulsion of the vessel; and

(iii) that is used for an industrial process, excluding a tank vessel in the trade of transporting cargo; in this provision, "industrial process" means the extraction of raw material or the physical or chemical transformation of raw material in either composition or character;

(12) "federal administrator" means the administrator of the United States Environmental Protection Agency;

(13) "fugitive emissions" means emissions of an air contaminant that could not reasonably be emitted from a contaminant outlet;

(14) "hazardous air contaminant" means a pollutant listed in or under 42 U.S.C. 7412(b) (Clean Air Act, sec. 112(b));

(15) "local air quality control program" means a program authorized under AS 46.14.400 to implement some or all of the provisions of this chapter;

(16) "modification" or "modify" means to make a change or a series of changes in operation, or any physical change or addition to a facility or source, that increases the actual emissions of an air contaminant;

(17) "operating permit" means a permit under AS 46.14.130 (b), including all relevant exhibits, addendums, transmittal letters, compliance schedules, administrative orders, emergency orders, and court orders;

(18) "operator" means a person or persons who direct, control, or supervise a facility or source that has the potential to emit an air contaminant to the atmosphere;

(19) "owner" means a person or persons with a proprietary or possessory interest in a facility or source that has the potential to emit an air contaminant to the atmosphere;

(20) "person" has the meaning given in AS 01.10.060 and also includes an agency of the United States, a municipality, the University of Alaska, the Alaska Railroad Corporation, and other departments, agencies, instrumentalities, units, and corporate authorities of the state;

(21) "potential to emit" means the maximum quantity of a release of an air contaminant, considering a facility's physical or operational design, based on continual operation of all sources within the facility for 24 hours a day, 365 days a year, reduced by the effect of pollution control equipment and approved state or federal limitations on the capacity of the facility's sources or the

DEFINITIONS FROM AS 46.14.990 BEFORE 2003 AMENDMENTS

facility to emit an air contaminant, including limitations such as restrictions on hours or rates of operation and type or amount of material combusted, stored, or processed; "potential to emit" does not include

(A) a one-time, accidental release of an air contaminant; or

(B) the fugitive emissions specifically exempted under 42 U.S.C. 7401 - 7671q (Clean Air Act);

(22) "reconstruct" means to replace components of a facility with new components to such an extent that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility;

(23) "regulated air contaminant" means

(A) a material, compound, or element for which a national or state ambient air quality standard has been adopted;

(B) oxides of nitrogen;

(C) a volatile organic compound;

(D) a pollutant that is addressed by a

(i) standard adopted under 42 U.S.C. 7411 - 7412 (Clean Air Act, sec. 111 - 112);

(ii) permit authorized under 42 U.S.C. 7412(g) or (j) (Clean Air Act, sec. 112(g) or (j)); or

(iii) regulation adopted under AS 46.14.010 (b)(3); and

(E) a substance regulated under 42 U.S.C. 7671a (Clean Air Act, Sec. 602);

(24) "small business facility" means a facility that

(A) is owned or operated by a person who employs 100 or fewer individuals;

(B) is a small business concern as defined in 15 U.S.C. 631 (Small Business Act); and

(C) emits less than 100 TPY of regulated air contaminants;

(25) "source" means a device, process, activity, or equipment that causes, or could cause, a release of an air contaminant;

(26) "tank vessel" means a waterborne vessel, ship, or barge, whether or not self-propelled, that is constructed or converted to carry cargo; "tank vessel" includes a tanker, tank ship, or combination carrier, but does not include a vessel that is loading or unloading

DEFINITIONS FROM AS 46.14.990 BEFORE 2003 AMENDMENTS

(A) cargo in sealed drums, barrels, or other packages; or

(B) petroleum or petroleum products solely as fuel for use on that vessel;

(27) "TPY" means tons per year.

DEFINITIONS FROM 18 AAC 50.990

(1) "actual emissions" has the meaning given in 18 AAC 50.910;

(2) "air contaminant" has the meaning given in AS 46.14.990;

(3) "air curtain incinerator" means a device in which large amounts of combustible materials are burned in a rectangular containment equipped with an overfire air system;

(4) "air pollution" has the meaning given in AS 46.03.900;

(5) "air pollution control equipment" means equipment or a portion of equipment designed to reduce the emissions of an air contaminant to the ambient air;

(6) "air quality control requirement" means any obligation created by AS 46.14, this chapter, or a term or condition of a preconstruction permit issued by the department before January 18, 1997;

(7) "allowable emissions" means the calculated emission rate of a source or facility using the maximum rated capacity and federally-enforceable limitations and conditions on emissions or operations;

(8) "ambient air" has the meaning given in AS 46.14.990;

(9) "ambient air quality standards" means the standards set by 18 AAC 50.010;

(10) "approved" means approved by the department;

(11) "asphalt plant" means a facility that manufactures asphalt concrete by heating and drying aggregate and mixing asphalt cements; the term includes any combination of dryers, systems for screening, handling, storing, and weighing dried aggregate, systems for loading, transferring, and storing mineral filler, systems for mixing, transferring, and storing asphalt concrete, and emission control systems within the facility;

(12) "assessable emission" has the meaning given in AS 46.14.250(h)(1);

(13) "best available control technology" means the emission limitation that represents the maximum reduction achievable for each regulated air contaminant, taking into account energy, environmental and economic impacts, and other costs; the resulting emissions must comply with applicable state and federal emission standards; best available control technology includes, for example, design features, equipment specifications, and work practices;

(14) "black smoke" means smoke having the color of emissions produced by the incomplete combustion of toluene in the double wall combustion chamber of a smoke generator;

DEFINITIONS FROM 18 AAC 50.990

(15) "Btu" means British thermal unit;

(16) “Class I area, “Class II area,” and “Class III area” mean an area designated in 18 AAC 50.015, Table 1, as Class I, Class II, or Class III respectively;

(17) "Clean Air Act" means 42 U.S.C. 7401 - 7671q, as amended through November 15, 1990;

(18) "coal preparation facility" means a facility that prepares coal by breaking, crushing, screening, wet or dry cleaning, or thermal drying, and that processes more than 200 tons per day of coal; the term includes any combination of thermal dryers, pneumatic coal-cleaning equipment, coal processing and conveying equipment, breakers and crushers, coal storage systems, and coal transfer systems within the facility;

(19) “combustion source” means, for the purpose of determining insignificant sources under 18 AAC 50.335(t), fuel burning equipment other than internal combustion engines;

(20) "commissioner" has the meaning given in AS 46.03.900;

(21) "conservation vent" means a vent containing a pressure-vacuum valve designed to minimize emissions of vapors from a storage tank due to changes in temperature and pressure;

(22) "construct" or "construction" has the meaning given in AS 46.14.990;

(23) "construction permit" has the meaning given in AS 46.14.990;

(24) "contaminant" means air contaminant;

(25) "contaminant outlet" has the meaning given in AS 46.14.990;

(26) "delivery tank" means the tank portion of a tank truck, tank trailer, or rail tank car, but does not include a tank of less than 2,500 gallons used to test or certify metering devices;

(27) "department" has the meaning given in AS 46.03.900;

(28) "designated" means a designation made by 18 AAC 50.015;

(29) "electric utility steam generating unit" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale; any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of a facility;

DEFINITIONS FROM 18 AAC 50.990

(30) "emission" has the meaning given in AS 46.14.990;

(31) "emission cap" means a restriction on the potential to emit that is independent of any other applicable requirement and that is established under a construction permit issued under this chapter;

(32) "emission limitation" has the meaning given in AS 46.14.990;

(33) "emission standard" has the meaning given in AS 46.14.990;

(34) "EPA" means the United States Environmental Protection Agency;

(35) "excess emissions" means emissions of an air contaminant in excess of any applicable emission standard or limitation;

(36) "expected," as that term is used in 18 AAC 50.010, has the meaning given in 40 C.F.R. Part 50, Appendices K and H, adopted by reference in 18 AAC 50.035;

(37) "facility" has the meaning given in AS 46.14.990;

(38) "federal administrator" has the meaning given in AS 46.14.990 and includes the federal administrator's designee;

(39) "federally-enforceable requirement" means any requirement established under the Clean Air Act and enforceable by the administrator of the United States Environmental Protection Agency (EPA);

(40) "fire service" means a fire department registered with the state fire marshall under 13 AAC 52.030, an organized fire brigade established under 8 AAC 61.010, Subchapter 01.1302(a)(1), and a wildland fire suppression organization within the Alaska Department of Natural Resources, Division of Forestry, the United States Forest Service, or the United States Bureau of Land Management/Alaska Fire Service;

(41) "fuel-burning equipment" means a combustion device capable of emission, including flares, but excluding mobile internal combustion engines, incinerators, marine vessels, wood-fired heating devices, and backyard barbecues;

(42) "fugitive emissions" has the meaning given in AS 46.14.990;

(43) "gasoline distribution facility" means a facility that stores fuel including gasoline and that transfers gasoline from storage tanks to delivery tanks;

DEFINITIONS FROM 18 AAC 50.990

(44) "good engineering practice stack height"

(A) for stack heights exceeding 213 feet, has the meaning given in 40 C.F.R. 51.100(ii), as amended through December 19, 1996, adopted by reference; or

(B) for all other stack heights, means the actual physical height of the stack;

(45) "hazardous air contaminant" and "hazardous air pollutant" each has the meaning given to "hazardous air contaminant" in AS 46.14.990;

(46) "hazardous waste" means a waste within the scope of 18 AAC 62.010 - 18 AAC 62.020;

(47) "impairment of visibility" means a humanly perceptible change in visibility such as visual range, contrast, or coloration, from that which would exist under natural conditions;

(48) "incinerator" means a device used for the thermal oxidation of garbage or other wastes, other than a wood-fired heating device, including an air curtain incinerator burning waste other than clean lumber, wood wastes, or yard wastes;

(49) "industrial process" means the extraction of raw material or the physical or chemical transformation of raw material in either composition or character;

(50) "lowest achievable emission rate" means the rate of emission achieved under the most stringent emission limitation imposed in any state or any emission control that has been achieved in practice by a comparable source;

(51) "maintenance area" means a geographical area that EPA previously designated as a nonattainment area and subsequently designated as an "attainment area" under 42 U.S.C. 7407(d)(3) (Clean Air Act, Section 107(d)(3));

(52) "marine vessel" means a seagoing craft, ship, or barge;

(53) “maximum achievable control technology (MACT)” means a maximum achievable control technology emission limitation defined in 40 C.F.R. 63.51, adopted by reference in 18 AAC 50.040, for a new or existing source;

(54) "maximum allowable ambient concentration" means an ambient concentration allowed under 18 AAC 50.020;

DEFINITIONS FROM 18 AAC 50.990

(55) "maximum true vapor pressure" means the equilibrium partial pressure exerted by a stored liquid at the local maximum monthly average temperature reported by the National Weather Service;

(56) "modification" or "modify" has the meaning given in AS 46.14.990;

(57) "nonattainment air contaminant" means the air contaminant for which a particular area has been designated by the department as nonattainment in 18 AAC 50.015; this term does not apply outside the boundaries of the areas designated by the department as nonattainment in 18 AAC 50.015;

(58) "nonattainment area" means, for a particular air contaminant, an area designated as nonattainment for that air contaminant;

(59) "nonroad engine" has the meaning given in 40 C.F.R. 89.2, as amended through December 19, 1996, adopted by reference;

(60) "nonroad vehicle" means a vehicle that is powered by a nonroad engine and that is not a motor vehicle or a vehicle used solely for competition;

(61) "nonroutine repair" means an immediate repair to correct an unavoidable emergency or malfunction;

(62) "open burning" means the burning of a material that results in the products of combustion being emitted directly into the ambient air without passing through a contaminant outlet;

(63) "operator" has the meaning given in AS 46.14.990;

(64) "organic vapors" means any organic compound or mixture of compounds evaporated from volatile liquid or any organic compound or mixture of compounds in aerosols formed from volatile liquid;

(65) "owner" has the meaning given in AS 46.14.990;

(66) "particulate matter" means a material, except water, that is or has been airborne and exists as a liquid or solid at standard conditions;

(67) "permit" includes all of the elements described in the definitions of "construction permit" and "operating permit" in AS 46.14.990;

(68) "person" has the meaning given in AS 46.14.990;

DEFINITIONS FROM 18 AAC 50.990

(69) "petroleum refinery" means a facility engaged in the distillation of petroleum or re-distillation, cracking, or reforming of unfinished petroleum derivatives;

(70) "PM-10" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers;

(71) “potential emissions” has the meaning given to the term "potential to emit" in AS 46.14.990;

(72) "potential to emit" has the meaning given in AS 46.14.990;

(73) "ppm" means parts per million;

(74) "practical means available" means, when approving the open burning of liquid hydrocarbons produced during oil or gas well testing, that all alternative disposal methods will have been analyzed and, where an environmentally acceptable procedure exists, it will be required;

(75) "putrescible garbage" means material capable of being decomposed with sufficient rapidity to cause nuisance or obnoxious odors;

(76) "rated capacity" means the maximum sustained capacity of the equipment based on the fuel or raw material, or combination of fuels or raw materials, that is actually used and gives the greatest capacity;

(77) "reconstruct" has the meaning given in AS 46.14.990;

(78) "reduction in visibility" means the obscuring of an observer's vision;

(79) "regionally significant project" has the meaning given in 40 C.F.R. 93.101 adopted by reference in 18 AAC 50.710;

(80) "regulated air contaminant" has the meaning given in AS 46.14.990;

(81) "responsible official" means

> (A) for a corporation, a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or a duly-authorized representative of that person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under AS 46.14 or this chapter, and

DEFINITIONS FROM 18 AAC 50.990

(i) the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million in second quarter 1980 dollars; or

(ii) the delegation of authority to the representative is approved in advance by the department;

(B) for a partnership or sole proprietorship, a general partner or the proprietor, respectively; and

(C) for a public agency, a principal executive officer or ranking elected official; for the purposes of this chapter, a principal executive officer of a federal agency includes the chief executive officer with responsibility for the overall operations of a principal geographic unit in this state;

(82) "scheduled maintenance" means activities planned in advance designed to keep equipment in good working order;

(83) "shutdown" means performing all activities necessary to cease operation of a source;

(84) "small business facility" has the meaning given in AS 46.14.990;

(85) "smolder" means to burn and smoke without flame;

(86) "source" has the meaning given in AS 46.14.990;

(87) "stack" means a chimney or conduit through which air or air contaminants are emitted into the environment;

(88) "standard conditions" means dry gas at 68^{o} F and an absolute pressure of 760 millimeters of mercury;

(89) "startup" means

(A) for an internal combustion engine aboard a marine vessel, the point in time that emissions begin to exit from the vessel as a result of igniting the engine; and

(B) for all other sources, the setting into operation of a source for any reason;

(90) "state air quality control plan" means the plan adopted by reference in 18 AAC 50.030;

(91) "technology-based emission standard" means

DEFINITIONS FROM 18 AAC 50.990

(A) a best available control technology standard;

(B) a lowest achievable emission rate standard;

(C) a maximum achievable control technology standard established under 40 C.F.R. Part 63, Subpart B, adopted by reference in 18 AAC 50.040(c);

(D) a standard adopted by reference in 18 AAC 50.040(a) or (c); and

(E) any other similar standard for which the stringency of the standard is based on determinations of what is technologically feasible, considering relevant factors;

(92) "temporary construction activity" means construction that is completed in 24 months or less from the date construction begins and includes any period of inactivity during that 24-month period.

(93) "Title I modification" means

(A) a modification described in 18 AAC 50.300(h)(3)-(10); or

(B) a modification under those provisions of 40 C.F.R. 60, 40 C.F.R. 61, or 40 C.F.R. 63, adopted by reference in 18 AAC 50.040;

(94) "TPY" has the meaning given in AS 46.14.990;

(95) "total suspended particulate" or "TSP" means particulate matter as measured by a method specified in the department's *Air Quality Assurance Manual for Ambient Air Quality Monitoring*, adopted by reference in 18 AAC 50.030;

(96) "uncontaminated fuel" means a hydrocarbon fuel, excluding propane, that does not contain used oil, crude oil, or a hazardous waste;

(97) "upset" means the sudden failure of equipment or a process to operate in a normal and usual manner.

(98) "vapor collection system" means all equipment, ducts, piping, valves, and fittings necessary to prevent organic vapors displaced at a loading rack from being emitted into the atmosphere;

(99) "vapor-laden delivery tank" means a delivery tank that is being loaded with volatile liquid or that was loaded with volatile liquid during the immediately preceding load;

DEFINITIONS FROM 18 AAC 50.990

(100) "volatile liquid" means a liquid compound or mixture of compounds that exerts a maximum true vapor pressure of 0.5 pounds per square inch or more;

(101) "volatile liquid loading rack" means all equipment, loading arms, piping, meters, and fittings used to fill delivery tanks with volatile liquid;

(102) "volatile liquid storage tank" means any stationary storage vessel that contains a volatile liquid;

(103) "VOC" or "volatile organic compound" has the meaning given in 40 C.F.R. 51.100, as amended through July 1, 1999, adopted by reference;

(104) "well servicing equipment" means portable equipment for servicing oil and gas wells that only stays on site for relatively short and varying periods of time and includes coiled tubing units, cement pumps, mud pumps, wireline equipment, well logging equipment, well perforating equipment, and well fishing equipment, but excludes drill rigs and associated engines, boilers, heaters, camps and camp equipment, pits, and tanks;

(105) "wood-fired heating device" means a device designed for wood combustion so that usable heat is derived for the interior of a building and includes wood-fired stoves, fireplaces, wood-fired cooking stoves, and combination fuel furnaces or boilers that burn wood, but does not include a device that is primarily a part of an industrial process and incidentally provides usable heat for the interior of a building;

(106) "grate cleaning" means removing ash from fireboxes;

(107) "soot-blowing" means using steam or compressed air to remove carbon from a furnace or from a boiler's heat transfer surfaces;

(108) "portable oil and gas operation" mans an operation that moves from site to site to drill or test an oil or gas well, and that uses drill rigs, equipment associated with drill rigs and drill operations, well test flares, equipment associated with well test flares, camps, or equipment associated with camps; "portable oil and gas operation" does not include equipment that operates at a single pad or platform, or at pads within a quarter of a mile of each other, for more than 24 consecutive months; for purposes of this paragraph,

(A) periods of inactivity between operations count towards the 24 consecutive month limit; and

(B) "test" means a test that involves the use of a flare;

(109) "rig day" means each calendar day that a single drill rig is drilling or testing an oil or gas

DEFINITIONS FROM 18 AAC 50.990

well in normal operation or standby service; "rig day" does not include a day when

(A) equipment is not operating; or

(B) only light plants are operating.

Air Quality Control Construction Permit Application Checklists

Table 1 identifies the checklists that apply to the various source classifications. Table 2 identifies the checklists that apply to the various modification classifications. A source or modification may meet the criteria of more than one classification. It is necessary to know all the classifications that apply to your source or modification to prepare a complete permit application.

Table 1

PERMIT APPLICATION CHECKLISTS FOR SPECIFIC SOURCE CLASSIFICATIONS

Checklist #	Source Classifications That Should Use This Checklist
1	Ambient Air Quality Facility Major Stationary Source Near a Nonattainment Area Ambient Air Quality Facility and one or more of the following source classifications: – Major Stationary Source Near A Nonattainment Area – Hazardous Air Pollutant Major Source – Port of Anchorage Facility Major Stationary Source Near a Nonattainment Area and one or more of the following source classifications: – Hazardous Air Pollutant Major Source – Port of Anchorage Facility
2	Prevention of Significant Deterioration Major Source Prevention of Significant Deterioration Major Source and one or more of the following source classifications: – Ambient Air Quality Facility – Major Stationary Source Near A Nonattainment Area – Hazardous Air Pollutant Major Source – Port of Anchorage Facility
3	Nonattainment Major Source Nonattainment Major Source and one or more of the following source classifications: – Hazardous Air Pollutant Major Source – Port of Anchorage Facility
4	Nonattainment Major Source and a Prevention of Significant Deterioration Major Source
5	Nonattainment Major Source and an Ambient Air Quality Facility
6	Hazardous Air Pollutant Major Source and/or a Port of Anchorage Facility

Table 2

PERMIT APPLICATION CHECKLISTS FOR SPECIFIC MODIFICATION CLASSIFICATIONS

Checklist #	Modification Classifications [a] That Should Use This Checklist
7	Modification Classifications M1, M2, and M9, or any combination of these modification classifications. Modification Classifications M1, M2, and M9, and one or more of the following modification classifications: – M10a – M10b – M11
8	Modification Classifications M3, M4a, and M4b Modification Classifications M3, M4a, and M4b and one or more of the following modification classifications: – M1 – M2 – M9 – M10a – M10b – M11
9	Modification Classifications M5, M6, M7, and M8 Modification Classifications M5, M6, M7, and M8 and one or more of the following modification classifications: – M10a – M10b – M11
10	Modification Classifications M5, M6, M7, and M8 and one or more of the following modification classifications: – M3 – M4a – M4b
11	Modification Classifications M5, M6, M7, and M8 Modification Classifications M5, M6, M7, and M8 and one or more of the following modification classifications: – M1 – M2
12	Modification Classifications M10a, M10b, and M11, or any combination of these modification classifications.

[a] M1 = Becoming an Ambient Air Quality Facility
M2 = Increase Over Current Allowable Emissions
M3 = PSD Major Modification
M4a and M4b = PSD Major Modification
M5 = Nonattainment Major Modification
M6 = Nonattainment Major Modification
M7 = Nonattainment Major Modification
M8 = Nonattainment Major Modification
M9 = Major Modification Near a Nonattainment Area
M10a and M10b = Hazardous Air Pollutant Major Modification
M11 = Port of Anchorage Modification

CHECKLIST 1

Applies to the following source classifications:

- **Ambient Air Quality Facility**
- **Major Stationary Source Near a Nonattainment Area**
- **Ambient Air Quality Facility and one or more of the following source classifications:**
  - **Major Stationary Source Near A Nonattainment Area**
  - **Hazardous Air Pollutant Major Source**
  - **Port of Anchorage Facility**
- **Major Stationary Source Near a Nonattainment Area and one or more of the following source classifications:**
  - **Hazardous Air Pollutant Major Source**
  - **Port of Anchorage Facility**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).

❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM F – Emission Unit Information

Attachments:

❒ Vendor specifications, if available, for sources and control devices.

❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.

CHECKLIST 1

- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.
- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)
- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E –Hazardous Air Pollutants

- Required if your source will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM G – Air Quality Modeling Checklist

- Required for the following air pollutants if they exceed the specified thresholds:
  - PM-10, if allowable emissions will exceed 15 tons per year (TPY);
  - SO_2, if allowable emissions will exceed 40 TPY;
  - NOx, measured as NO_2, if allowable emissions will exceed 40 TPY; and
  - Lead, if allowable emissions will exceed 0.6 TPY.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular source classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

CHECKLIST 1

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

❒ FORM J – New Source Performance Standards

- Required if your source has an emission unit subject to a New Source Performance Standard.

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your source has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

❒ FORM L – Storage Tank Information

- Required if your source includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your source will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM O – Port of Anchorage

- Required if your source is located in the Port of Anchorage and contains 1) a volatile liquid storage tank with a volume of 9,000 barrels or more or 2) a volatile liquid loading rack with a design throughput of 15 million gallons per year or more.
- Attachments:
  - ❒ If you will be using a flare as the control device, attach the information required by 40 C.F.R. 60.18.
  - ❒ If you are proposing an alternative control system under 18 AAC 50.085(a)(4) or 18 AAC 50.090(a)(1)(D)(ii), attach the information required by Subpart I, Section 2.a.ii.

CHECKLIST 1

- ❒ If you will be using a "Tank with Closed Vent System Control Device," attach the operating plan described in Subpart I, Section 2.b.iii.
- ❒ For each volatile liquid storage tank with a Closed Vent System and Control Device, attach the operating plan described in 40 C.F.R. 60.113b(c)(1)(i) and (ii).
- ❒ For each volatile liquid loading rack, attach the following items:
  - A description of the volatile liquid loading rack as described in Subpart I, Section 2.c.i;
  - A description of the vapor collection system as described in Subpart I, Section 2.c.ii; and
  - A description of the vapor processing system as described in Subpart I, Section 2.c.iii.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 2

Applies to the following source classifications:

- **Prevention of Significant Deterioration Major Source**
- **Prevention of Significant Deterioration Major Source and one or more of the following source classifications:**
  - **Ambient Air Quality Facility**
  - **Major Stationary Source Near A Nonattainment Area**
  - **Hazardous Air Pollutant Major Source**
  - **Port of Anchorage Facility**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.
- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.

CHECKLIST 2

- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)
- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.
- ❒ A BACT analysis.

❒ FORM G – Air Quality Modeling Checklist

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E –Hazardous Air Pollutants

- Required if your source will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular source classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

❒ FORM J – New Source Performance Standards

- Required if your source has an emission unit subject to a New Source Performance Standard.

CHECKLIST 2

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your source has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

❒ FORM L – Storage Tank Information

- Required if your source includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your source will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM O – Port of Anchorage

- Required if your source is located in the Port of Anchorage and contains 1) a volatile liquid storage tank with a volume of 9,000 barrels or more or 2) a volatile liquid loading rack with a design throughput of 15 million gallons per year or more.
- Attachments:
  - ❒ If you will be using a flare as the control device, attach the information required by 40 C.F.R. 60.18.
  - ❒ If you are proposing an alternative control system under 18 AAC 50.085(a)(4) or 18 AAC 50.090(a)(1)(D)(ii), attach the information required by Subpart I, Section 2.a.ii.
  - ❒ If you will be using a "Tank with Closed Vent System Control Device," attach the operating plan described in Subpart I, Section 2.b.iii.
  - ❒ For each volatile liquid storage tank with a Closed Vent System and Control Device, attach the operating plan described in 40 C.F.R. 60.113b(c)(1)(i) and (ii).
  - ❒ For each volatile liquid loading rack, attach the following items:
    - A description of the volatile liquid loading rack as described in Subpart I, Section 2.c.i;
    - A description of the vapor collection system as described in Subpart I, Section 2.c.ii; and

CHECKLIST 2

- A description of the vapor processing system as described in Subpart I, Section 2.c.iii.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 3

Applies to the following source classifications:

- **Nonattainment Major Source**
- **Nonattainment Major Source and one or more of the following source classifications:**
  - **Hazardous Air Pollutant Major Source**
  - **Port of Anchorage Facility**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.
- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.
- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)

CHECKLIST 3

- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.
- ❒ A LAER demonstration.

❒ FORM M – Nonattainment Permitting

- Attachments:
  - ❒ A demonstration that each other stationary source that you own or operate in Alaska complies with state and federal air pollution control laws and regulations.

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E – Hazardous Air Pollutants

- Required if your source will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular source classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

❒ FORM J – New Source Performance Standards

- Required if your source has an emission unit subject to a New Source Performance Standard.

CHECKLIST 3

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your source has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

❒ FORM L – Storage Tank Information

- Required if your source includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your source will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM O – Port of Anchorage

- Required if your source is located in the Port of Anchorage and contains 1) a volatile liquid storage tank with a volume of 9,000 barrels or more or 2) a volatile liquid loading rack with a design throughput of 15 million gallons per year or more.
- Attachments:
  - ❒ If you will be using a flare as the control device, attach the information required by 40 C.F.R. 60.18.
  - ❒ If you are proposing an alternative control system under 18 AAC 50.085(a)(4) or 18 AAC 50.090(a)(1)(D)(ii), attach the information required by Subpart I, Section 2.a.ii.
  - ❒ If you will be using a "Tank with Closed Vent System Control Device," attach the operating plan described in Subpart I, Section 2.b.iii.
  - ❒ For each volatile liquid storage tank with a Closed Vent System and Control Device, attach the operating plan described in 40 C.F.R. 60.113b(c)(1)(i) and (ii).
  - ❒ For each volatile liquid loading rack, attach the following items:
    - A description of the volatile liquid loading rack as described in Subpart I, Section 2.c.i;
    - A description of the vapor collection system as described in Subpart I, Section 2.c.ii; and

CHECKLIST 3

- A description of the vapor processing system as described in Subpart I, Section 2.c.iii.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 4

Applies to the following source classifications:

- **Nonattainment Major Source and a Prevention of Significant Deterioration Major Source**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.
- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.
- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)
- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.
- ❒ A BACT analysis and/or LAER demonstration if applicable.

❒ FORM G – Air Quality Modeling Checklist

CHECKLIST 4

❒ FORM M – Nonattainment Permitting

- Attachments:
  - ❒ A demonstration that each other stationary source that you own or operate in Alaska complies with state and federal air pollution control laws and regulations.

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E –Hazardous Air Pollutants

- Required if your source will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular source classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

❒ FORM J – New Source Performance Standards

- Required if your source has an emission unit subject to a New Source Performance Standard.

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your source has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

CHECKLIST 4

❒ FORM L – Storage Tank Information

- Required if your source includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your source will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 5

Applies to the following source classifications:

- **Nonattainment Major Source and an Ambient Air Quality Facility**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.
- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.
- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)
- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.
- ❒ A LAER demonstration.

CHECKLIST 5

❒ FORM M – Nonattainment Permitting

- Attachments:
  - ❒ A demonstration that each other stationary source that you own or operate in Alaska complies with state and federal air pollution control laws and regulations.

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E – Potential to Emit Hazardous Air Pollutants

- Required if your source will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM G – Air Quality Modeling Checklist

- Required for the following air pollutants if they exceed the specified thresholds:
  - PM-10, if allowable emissions will exceed 15 tons per year (TPY);
  - SO_2, if allowable emissions will exceed 40 TPY;
  - NO_X, measured as NO_2, if allowable emissions will exceed 40 TPY; and
  - Lead, if allowable emissions will exceed 0.6 TPY.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular source classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

CHECKLIST 5

❒ FORM J – New Source Performance Standards

- Required if your source has an emission unit subject to a New Source Performance Standard.

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your source has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

❒ FORM L – Storage Tank Information

- Required if your source includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your source will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 6

Applies to the following source classifications:

- **Hazardous Air Pollutant Major Source and/or**
- **Port of Anchorage Facility**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.
- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.
- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)
- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.

CHECKLIST 6

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E –Hazardous Air Pollutants

- Required if your source will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular source classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

❒ FORM J – New Source Performance Standards

- Required if your source has an emission unit subject to a New Source Performance Standard.

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your source has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

❒ FORM L – Storage Tank Information

- Required if your source includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

CHECKLIST 6

❒ FORM N – Offset Source

- Required if your source will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM O – Port of Anchorage

- Required if your source is located in the Port of Anchorage and contains 1) a volatile liquid storage tank with a volume of 9,000 barrels or more or 2) a volatile liquid loading rack with a design throughput of 15 million gallons per year or more.
- Attachments:
  - ❒ If you will be using a flare as the control device, attach the information required by 40 C.F.R. 60.18.
  - ❒ If you are proposing an alternative control system under 18 AAC 50.085(a)(4) or 18 AAC 50.090(a)(1)(D)(ii), attach the information required by Subpart I, Section 2.a.ii.
  - ❒ If you will be using a "Tank with Closed Vent System Control Device," attach the operating plan described in Subpart I, Section 2.b.iii.
  - ❒ For each volatile liquid storage tank with a Closed Vent System and Control Device, attach the operating plan described in 40 C.F.R. 60.113b(c)(1)(i) and (ii).
  - ❒ For each volatile liquid loading rack, attach the following items:
    - A description of the volatile liquid loading rack as described in Subpart I, Section 2.c.i;
    - A description of the vapor collection system as described in Subpart I, Section 2.c.ii; and
    - A description of the vapor processing system as described in Subpart I, Section 2.c.iii.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.

CHECKLIST 6

❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 7

Applies to the following modification classifications:

- **Modification Classifications: Becoming an Ambient Air Quality Facility – M1, Increase Over Current Allowable Emissions – M2, and Major Modification Near a Nonattainment Area – M9, or any combination of these modification classifications.**
- **Modification Classifications: Becoming an Ambient Air Quality Facility – M1, Increase Over Current Allowable Emissions – M2, and Major Modification Near a Nonattainment Area – M9, and one or more of the following modification classifications:**
  - **Hazardous Air Pollutant Major Modification – M10a**
  - **Hazardous Air Pollutant Major Modification – M10b**
  - **Port of Anchorage Modification – M11**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM D – Actual Emissions Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form D.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.

CHECKLIST 7

- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.
- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)
- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E –Hazardous Air Pollutants

- Required if your modification will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM G – Air Quality Modeling Checklist

- Required for the following air pollutants if they result in an increase in allowable emissions:
  - PM-10;
  - SO_2;
  - NO_X, measured as NO_2; and
  - Lead.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular modification classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

CHECKLIST 7

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

❒ FORM J – New Source Performance Standards

- Required if your modification has an emission unit subject to a New Source Performance Standard.

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your modification has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

❒ FORM L – Storage Tank Information

- Required if your modification includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your source will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM O – Port of Anchorage

- Required if your source is located in the Port of Anchorage and contains 1) a volatile liquid storage tank with a volume of 9,000 barrels or more or 2) a volatile liquid loading rack with a design throughput of 15 million gallons per year or more.
- Attachments:
  - ❒ If you will be using a flare as the control device, attach the information required by 40 C.F.R. 60.18.
  - ❒ If you are proposing an alternative control system under 18 AAC 50.085(a)(4) or 18 AAC 50.090(a)(1)(D)(ii), attach the information required by Subpart I, Section 2.a.ii.

CHECKLIST 7

- ❒ If you will be using a "Tank with Closed Vent System Control Device," attach the operating plan described in Subpart I, Section 2.b.iii.
- ❒ For each volatile liquid storage tank with a Closed Vent System and Control Device, attach the operating plan described in 40 C.F.R. 60.113b(c)(1)(i) and (ii).
- ❒ For each volatile liquid loading rack, attach the following items:
  - A description of the volatile liquid loading rack as described in Subpart I, Section 2.c.i;
  - A description of the vapor collection system as described in Subpart I, Section 2.c.ii; and
  - A description of the vapor processing system as described in Subpart I, Section 2.c.iii.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 8

Applies to the following modification classifications:

- **Modification Classifications: PSD Major Modifications – M3, M4a, and M4b**
- **Modification Classifications: PSD Major Modifications – M3, M4a, and M4b and one or more of the following modification classifications:**
  - **Becoming an Ambient Air Quality Facility – M1**
  - **Increase Over Current Allowable Emissions – M2**
  - **Major Modification Near a Nonattainment Area – M9**
  - **Hazardous Air Pollutant Major Modification – M10a**
  - **Hazardous Air Pollutant Major Modification – M10b**
  - **Port of Anchorage Modification – M11**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM D – Actual Emissions Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form D.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.

CHECKLIST 8

- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.
- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)
- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.
- ❒ A BACT analysis.

❒ FORM G – Air Quality Modeling Checklist

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E –Hazardous Air Pollutants

- Required if your modification will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular modification classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

CHECKLIST 8

❒ FORM J – New Source Performance Standards

- Required if your modification has an emission unit subject to a New Source Performance Standard.

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your modification has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

❒ FORM L – Storage Tank Information

- Required if your modification includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your source will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM O – Port of Anchorage

- Required if your source is located in the Port of Anchorage and contains 1) a volatile liquid storage tank with a volume of 9,000 barrels or more or 2) a volatile liquid loading rack with a design throughput of 15 million gallons per year or more.
- Attachments:
  - ❒ If you will be using a flare as the control device, attach the information required by 40 C.F.R. 60.18.
  - ❒ If you are proposing an alternative control system under 18 AAC 50.085(a)(4) or 18 AAC 50.090(a)(1)(D)(ii), attach the information required by Subpart I, Section 2.a.ii.
  - ❒ If you will be using a "Tank with Closed Vent System Control Device," attach the operating plan described in Subpart I, Section 2.b.iii.
  - ❒ For each volatile liquid storage tank with a Closed Vent System and Control Device, attach the operating plan described in 40 C.F.R. 60.113b(c)(1)(i) and (ii).
  - ❒ For each volatile liquid loading rack, attach the following items:
    - A description of the volatile liquid loading rack as described in Subpart I, Section 2.c.i;

CHECKLIST 8

- A description of the vapor collection system as described in Subpart I, Section 2.c.ii; and
- A description of the vapor processing system as described in Subpart I, Section 2.c.iii.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 9

Applies to the following modification classifications:

- **Modification Classifications: Nonattainment Major Modifications – M5, M6, M7, and M8**
- **Modification Classifications: Nonattainment Major Modifications – M5, M6, M7, and M8 and one or more of the following modification classifications:**
  - **Hazardous Air Pollutant Major Modification – M10a**
  - **Hazardous Air Pollutant Major Modification – M10b**
  - **Port of Anchorage Modification – M11**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM D – Actual Emissions Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form D.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.
- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.

CHECKLIST 9

- ❒ A table of building dimensions.
- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)
- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.
- ❒ A LAER demonstration.

❒ FORM M – Nonattainment Permitting

- Attachments:
  - ❒ A demonstration that each other stationary source that you own or operate in Alaska complies with state and federal air pollution control laws and regulations.

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E –Hazardous Air Pollutants

- Required if your modification will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular modification classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

CHECKLIST 9

❒ FORM J – New Source Performance Standards

- Required if your modification has an emission unit subject to a New Source Performance Standard.

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your modification has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

❒ FORM L – Storage Tank Information

- Required if your modification includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your modification will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM O – Port of Anchorage

- Required if your source is located in the Port of Anchorage and contains 1) a volatile liquid storage tank with a volume of 9,000 barrels or more or 2) a volatile liquid loading rack with a design throughput of 15 million gallons per year or more.
- Attachments:
  - ❒ If you will be using a flare as the control device, attach the information required by 40 C.F.R. 60.18.
  - ❒ If you are proposing an alternative control system under 18 AAC 50.085(a)(4) or 18 AAC 50.090(a)(1)(D)(ii), attach the information required by Subpart I, Section 2.a.ii.
  - ❒ If you will be using a "Tank with Closed Vent System Control Device," attach the operating plan described in Subpart I, Section 2.b.iii.
  - ❒ For each volatile liquid storage tank with a Closed Vent System and Control Device, attach the operating plan described in 40 C.F.R. 60.113b(c)(1)(i) and (ii).
  - ❒ For each volatile liquid loading rack, attach the following items:
    - A description of the volatile liquid loading rack as described in Subpart I, Section 2.c.i;

CHECKLIST 9

- A description of the vapor collection system as described in Subpart I, Section 2.c.ii; and
- A description of the vapor processing system as described in Subpart I, Section 2.c.iii.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 10

Applies to the following modification classifications:

- **Modification Classifications: Nonattainment Major Modifications – M5, M6, M7, and M8 and one or more of the following modification classifications:**
  - **PSD Major Modification – M3**
  - **PSD Major Modification – M4a**
  - **PSD Major Modification – M4b**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM D – Actual Emissions Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form D.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.
- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.

CHECKLIST 10

- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)
- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.
- ❒ A BACT analysis and/or LAER demonstration if applicable.

❒ FORM G – Air Quality Modeling Checklist

❒ FORM M – Nonattainment Permitting

- Attachments:
  - ❒ A demonstration that each other stationary source that you own or operate in Alaska complies with state and federal air pollution control laws and regulations.

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E –Hazardous Air Pollutants

- Required if your modification will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular modification classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

CHECKLIST 10

❒ FORM J – New Source Performance Standards

- Required if your modification has an emission unit subject to a New Source Performance Standard.

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your modification has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

❒ FORM L – Storage Tank Information

- Required if your modification includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your modification will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 11

Applies to the following modification classifications:

- **Modification Classifications: Nonattainment Major Modifications – M5, M6, M7, and M8**
- **Modification Classifications: Nonattainment Major Modifications – M5, M6, M7, and M8 and one or more of the following modification classifications:**
  - **Becoming an Ambient Air Quality Facility – M1**
  - **Increase Over Current Allowable Emissions – M2**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM D – Actual Emissions Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form D.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.
- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.

CHECKLIST 11

- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)
- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.
- ❒ A LAER demonstration.

❒ FORM M – Nonattainment Permitting

- Attachments:
  - ❒ A demonstration that each other stationary source that you own or operate in Alaska complies with state and federal air pollution control laws and regulations.

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E – Hazardous Air Pollutants

- Required if your modification will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM G – Air Quality Modeling Checklist

- Required for the following air pollutants if they result in an increase in allowable emissions:
  - PM-10;
  - SO_2;
  - NO_X, measured as NO_2; and
  - Lead.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular modification classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

CHECKLIST 11

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

❒ FORM J – New Source Performance Standards

- Required if your modification has an emission unit subject to a New Source Performance Standard.

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your modification has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

❒ FORM L – Storage Tank Information

- Required if your modification includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your modification will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

CHECKLIST 12

Applies to the following modification classifications:

- **Modification Classifications: Hazardous Air Pollutant Major Modifications – M10a and M10b, and Port of Anchorage Modification – M11, or any combination of these modification classifications.**

FORMS THAT MUST BE SUBMITTED FOR A COMPLETE APPLICATION

At a minimum, the following forms are required for a complete permit application. As noted below, additional forms may be required.

❒ FORM A – Retainer Invoice

❒ FORM B – Source Identification Form

Attachments:

- ❒ A map or aerial photograph that meets the criteria in 18 AAC 50.310(c)(7).
- ❒ A detailed schedule for construction or modification of the source [18 AAC 50.310(c)(8)].

❒ FORM C – Potential to Emit Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form C.

❒ FORM D – Actual Emissions Summary

Attachments:

- ❒ Detailed emission calculations that support the data presented in Form D.

❒ FORM F – Emission Unit Information

Attachments:

- ❒ Vendor specifications, if available, for sources and control devices.
- ❒ If the exhaust stack height is greater than 65 meters, a calculation of good engineering practices stack height, including any computer modeling analyses or field studies.
- ❒ A set of plans showing the location of the emission unit, associated buildings, and other nearby structures.
- ❒ A table of building dimensions.
- ❒ A demonstration of compliance for any applicable emission limits or standards, other than NSPS or NESHAPs, specified in 18 AAC 50.040. (Compliance demonstration for NSPS and NESHAPS will be included on Forms J and K, respectively.)

CHECKLIST 12

- ❒ A demonstration of compliance for any applicable emission limits or standards specified in 18 AAC 50.050 through 50.090.

FORMS THAT MAY NEED TO BE SUBMITTED FOR A COMPLETE APPLICATION

In addition to the forms listed above, the forms listed below may be required for a complete permit application if the specified criteria are met.

❒ FORM E –Hazardous Air Pollutants

- Required if your modification will result in an increase in emissions of hazardous air pollutants.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form E.

❒ FORM H – Owner Requested Limits to Avoid Classification

- Required if you are requesting specific permit limits to avoid a particular modification classification.
- Attachments:
  - ❒ Any calculations the department will need to determine that the proposed restrictions will avoid classification.

❒ FORM I – Revisions and Revocations

- Required if you are requesting that existing permit terms or conditions be revised or revoked.
- Attachments:
  - ❒ A copy of the construction permit that established the permit term or condition to be revised or revoked.

❒ FORM J – New Source Performance Standards

- Required if your modification has an emission unit subject to a New Source Performance Standard.

❒ FORM K – National Emission Standards for Hazardous Air Pollutants

- Required if your modification has an emission unit subject to a National Emission Standard for Hazardous Air Pollutants.
- Attachments:
  - ❒ If applicable, a case-by-case MACT demonstration.

CHECKLIST 12

❒ FORM L – Storage Tank Information

- Required if your modification includes a storage tank.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form L.

❒ FORM N – Offset Source

- Required if your source will be reducing emissions of a nonattainment air pollutant so that another source can increase emissions of the same nonattainment air pollutant.
- Attachments:
  - ❒ Detailed emission calculations that support the data presented in Form N.

❒ FORM O – Port of Anchorage

- Required if your source is located in the Port of Anchorage and contains 1) a volatile liquid storage tank with a volume of 9,000 barrels or more or 2) a volatile liquid loading rack with a design throughput of 15 million gallons per year or more.
- Attachments:
  - ❒ If you will be using a flare as the control device, attach the information required by 40 C.F.R. 60.18.
  - ❒ If you are proposing an alternative control system under 18 AAC 50.085(a)(4) or 18 AAC 50.090(a)(1)(D)(ii), attach the information required by Subpart I, Section 2.a.ii.
  - ❒ If you will be using a "Tank with Closed Vent System Control Device," attach the operating plan described in Subpart I, Section 2.b.iii.
  - ❒ For each volatile liquid storage tank with a Closed Vent System and Control Device, attach the operating plan described in 40 C.F.R. 60.113b(c)(1)(i) and (ii).
  - ❒ For each volatile liquid loading rack, attach the following items:
    - A description of the volatile liquid loading rack as described in Subpart I, Section 2.c.i;
    - A description of the vapor collection system as described in Subpart I, Section 2.c.ii; and
    - A description of the vapor processing system as described in Subpart I, Section 2.c.iii.

CHECKLIST 12

❒ FORM P – Stack Injection

- Required if you will be introducing into a stack materials other than process emissions, products of combustion, or materials introduced to control air pollutant emissions.
- Attachments:
  - ❒ A laboratory analysis describing the amount and content of the material to be introduced.
  - ❒ An engineering analysis showing that the exhaust can meet emission and opacity standards.
  - ❒ If the material(s) that will be introduced into the stack contain hazardous air pollutants, back-up documentation for the estimated maximum ambient concentration.

Appendix C

Application Forms

Posted Separately

Appendix D

Instruction Manual

Posted Separately

Appendix E – Table of Contents

Appendix E Tables 1 & 2

See Excel File Posted Separately

TABLE E-3

EXAMPLE CALCULATION
DEMONSTRATION OF COMPLIANCE WITH GRAIN LOADING STANDARD

This example calculation shows how to demonstrate compliance with the grain loading standard for a natural gas-fired boiler. Pursuant to 18 AAC 50.055(b)(1), the applicable grain loading standard for a natural gas-fired boiler is 0.05 grains per dry standard cubic foot (gr/dscf), averaged over three hours.

Known Information:

Boiler Rating: 50 MMBtu/hr

If the exhaust flow rate from the equipment manufacturer or vendor is available, that should be used. If the exhaust flow rate is not known, 40 Code of Federal Regulations (CFR) Part 60, Method 19 can be used to estimate the exhaust flow rate as shown in Step 1.

Step 1: Estimate the Exhaust Flow Rate

Equation 1: Exhaust Flow Rate (dscf/hr) = Equipment Rating x F_d x [20.9/(20.9-O_{2d}]

Where:

Equipment Rating = Design input rating of equipment in MMBtu/hr
F_d = F Factor, Dry Basis in units of dscf/MMBtu – The F Factor is the ratio of the gas volume of the products of combustion to the heat content of the fuel.
O_{2d} = Percent oxygen in exhaust gas

Determine the Appropriate F-Factor and Percent O_{2d}

F_d for Natural Gas = 8,710 dscf/MMBtu from 40 CFR 60, Method 19

If O_{2d} is not known, can conservatively assume O_{2d} = 5% since exhaust gas typically has some excess air for good combustion practices.

Calculate the Exhaust Flow Rate

Using Equation 1:

$$\text{Exhaust Flow Rate} = \frac{50\ \text{MMBtu}}{\text{hr}} \times \frac{8710\ \text{dscf}}{\text{MMBtu}} \times \frac{20.9}{(20.9-5)} = \frac{572450\ \text{dscf}}{\text{hr}}$$

Step 2: Calculate Particulate Matter Emissions on an Hourly Basis

Equation 2: PM Emissions = Rating x EF

Where:

PM Emissions = particulate matter emissions in units of lb/hr
Rating = Equipment Rating in units of MMBtu/hr
EF = Emission Factor in units of lb/MMBtu

Determine the Appropriate Emission Factor

AP-42, Section 1.4, July1998, provides emission factors for natural gas combustion sources. The emission factor for particulate matter provided in AP-42, Table 1.4-2 is 7.6 lb/MMscf.

Convert the Emission Factor to Units of lb/MMBtu

If the heating value of the natural gas is known, the emission factor can be converted to lb/MMBtu as shown below in Equation 3:

Equation 3: EF (lb/MMBtu) = EF (lb/MMscf) x Heating Value of Natural Gas (MMscf/MMBtu)

Note: If the heating value of natural gas is not known, the heating value of 1020 MMBtu/MMscf provided in AP-42, Section 1.4, July 1998 can be used.

$$EF = \frac{7.6\ lb}{MMscf} \times \frac{MMscf}{1020\ MMBtu} = \frac{0.0075\ lb}{MMBtu}$$

Calculate Emissions

Using Equation 2:

$$PM\ Emissions = \frac{50\ MMBtu}{hr} \times \frac{0.0075\ lb}{MMBtu} = \frac{0.38\ lb}{hr}$$

Step 3: Calculate the Grain Loading Value

Equation 4: Grain Loading Value = PM Emissions x 7,000 grains/lb / Exhaust Flow Rate

Where:

Grain Loading Value = grain loading value in units of gr/dscf
PM Emissions = particulate matter emissions in units of lb/hr
7,000 grains/lb = conversion factor
Exhaust Flow Rate = exhaust flow rate in units of dscf/hr

$$Grain\ Loading\ Value = \frac{0.38\ lb}{hr} \times \frac{7{,}000\ gr}{lb} \times \frac{hr}{572450\ dscf} = \frac{0.005\ gr}{dscf}$$

Because the calculated grain loading value (0.005 gr/dscf) is less than the grain loading standard (0.05 gr/dscf), compliance with the standard is demonstrated.

TABLE E-4

EXAMPLE CALCULATION
DEMONSTRATION OF COMPLIANCE WITH SULFUR COMPOUND STANDARD

Two example calculations are shown below to demonstrate compliance with the sulfur compound emissions (expressed as SO_2) standard for a natural gas-fired boiler. Pursuant to 18 AAC 50.055(c), the applicable standard for a natural gas-fired boiler is 500 parts per million by volume (ppmv), averaged over three hours. The first example is based on the SO_2 emissions from the source and the exhaust flow rate of the source. The second example is based on a mass balance calculation.

Example 1: SO_2 Emissions Rate and Exhaust Flow Rate

Known Information:

Boiler Rating: 50 MMBtu/hr

If the exhaust flow rate from the equipment manufacturer or vendor is available, that should be used. If the exhaust flow rate is not known, 40 Code of Federal Regulations (CFR) Part 60, Method 19 can be used to estimate the exhaust flow rate as shown in Step 1.

Step 1: Estimate the Exhaust Flow Rate

Equation 1: Exhaust Flow Rate (dscf/hr) = Equipment Rating x F_d x [20.9/(20.9-O_{2d}]

Where:

Equipment Rating = Design input rating of equipment in MMBtu/hr
F_d = F Factor, Dry Basis in units of dscf/MMBtu – The F Factor is the ratio of the gas volume of the products of combustion to the heat content of the fuel.
O_{2d} = Percent oxygen in exhaust gas

Determine the Appropriate F-Factor and Percent O_{2d}

F_d for Natural Gas = 8,710 dscf/MMBtu from 40 CFR 60, Method 19

If O_{2d} is not known, can conservatively assume O_{2d} = 5% since exhaust gas typically has some excess air for good combustion practices.

Calculate the Exhaust Flow Rate

Using Equation 1:

$$\text{Exhaust Flow Rate} = \frac{50\ \text{MMBtu}}{\text{hr}} \times \frac{8710\ \text{dscf}}{\text{MMBtu}} \times \frac{20.9}{(20.9-5)} = \frac{572450\ \text{dscf}}{\text{hr}}$$

Step 2: Calculate SOx Emissions on an Hourly Basis

Equation 2: PM Emissions = Rating x EF

Where:

SOx Emissions = SOx emissions in units of lb/hr
Rating = Equipment Rating in units of MMBtu/hr
EF = Emission Factor in units of lb/MMBtu

Determine the Appropriate Emission Factor

AP-42, Section 1.4, July1998, provides emission factors for natural gas combustion sources. The emission factor for SO_2 emissions provided in AP-42, Table 1.4-2 is 0.6 lb/MMscf, based on a fuel sulfur content of 2,000 grains/MMscf.

Convert the Emission Factor to Units of lb/MMBtu

If the heating value of the natural gas is known, the emission factor can be converted to lb/MMBtu as shown below in Equation 3:

Equation 3: EF (lb/MMBtu) = EF (lb/MMscf) x Heating Value of Natural Gas (MMscf/MMBtu)

Note: If the heating value of natural gas is not known, the heating value of 1020 MMBtu/MMscf provided in AP-42, Section 1.4, July 1998 can be used.

$$\text{EF} = \frac{0.6\ \text{lb}}{\text{MMscf}} \times \frac{\text{MMscf}}{1020\ \text{MMBtu}} = \frac{0.00059\ \text{lb}}{\text{MMBtu}}$$

Calculate Emissions

Using Equation 2:

$$SO_2\ \text{Emissions} = \frac{50\ \text{MMBtu}}{\text{hr}} \times \frac{0.00059\ \text{lb}}{\text{MMBtu}} = \frac{0.0295\ \text{lb}}{\text{hr}}$$

Step 3: Calculate the SO_2 Concentration

Equation 4: SO_2 Concentration = SO_2 Emissions x 1/Molecular Weight of SO_2 x Molar Volume / Exhaust Flow Rate x 1000000

Where:

SO_2 Concentration = SO_2 emissions in units of ppmv
SO_2 Emissions = SO_2 emissions in units of lb/hr
Molecular Weight = molecular weight of SO_2 in units of lbs/mole
Molar Volume = volume of one mole in units of cu. ft/mole at standard conditions (Note: Standard conditions are defined in 18 AAC 50.990 as 68°F and 760 millimeters of mercury [mmHg].)
Exhaust Flow Rate = exhaust flow rate in units of dscf/hr

$$SO_2 \text{ Concentration} = \frac{0.0295 \text{ lb}}{\text{hr}} \times \frac{\text{mole}}{64 \text{ lb}} \times \frac{385.3 \text{ scf}}{\text{mole}} \times \frac{\text{hr}}{572450 \text{ dscf}} \times 1000000 = 0.31 \text{ ppmv}$$

Because the calculated SO_2 concentration (0.31 ppmv) is less than the sulfur compounds emission standard (500 ppmv), compliance with the standard is demonstrated.

Example 2: Mass Balance Methodology

Known Information:

Boiler Rating: 50 MMBtu/hr

Hydrogen sulfide (H_2S) concentration in natural gas = 50 ppmv

Step 1: Calculate the SO_2 Concentration

Given that all of the H_2S in the natural gas will be converted completely to SO_2 when burned, every mole of H_2S contained in the natural gas will produce a mole of SO_2.

Equation 2: *SO_2 Concentration = H_2S Concentration / Molar Volume x (1 lb-mole SO_2/1lb-mole H_2S) x Molecular Weight of SO_2 / Density of SO_2 x 1000000*

Where:

SO_2 Concentration = SO_2 emissions in units of ppmv
H_2S Concentration = H_2S Concentration in units of ppmv, which is equivalent to lb-mole H_2S/10^6 lb-mole gas
Molar Volume = volume of one mole in units of cu. ft/mole at standard conditions (Note: Standard conditions are defined in 18 AAC 50.990 as 68°F and 760 mmHg.)
Molecular Weight = molecular weight of SO_2 in units of lbs/mole
Density of SO_2 = density of SO_2 at standard conditions (Note: Standard conditions are defined in 18 AAC 50.990 as 68°F and 760 mmHg.)

$$SO_2 \text{ Concentration} = \frac{50 \text{ lb-mole } H_2S}{10^6 \text{ lb-mole gas}} \times \frac{\text{mole}}{385.3 \text{ ft}^3} \times \frac{1 \text{ lb-mole } SO_2}{\text{lb-mole } H_2S} \times \frac{64 \text{ lb } SO_2}{\text{lb-mole}} \times \frac{\text{scf } SO_2}{0.196 \text{ lb}} \times 1000000$$

$$= 4.24 \text{ ppmv}$$

Because the calculated SO_2 concentration (4.24 ppmv) is less than the sulfur compounds emission standard (500 ppmv), compliance with the standard is demonstrated.

Appendix E Table 5

See Excel File Posted Separately